

ABSTRACT

Materialism, reductionism, behaviorism, functionalism, dynamic systems theory and computationalism are popular views, but they were shown by Wittgenstein to be incoherent. The study of behavior encompasses all of human life but behavior is largely automatic and unconscious and even the conscious part, mostly expressed in language (which Wittgenstein equates with the mind), is not perspicuous, so it is critical to have a framework which Searle calls the Logical Structure of Rationality (LSR) and I call the Descriptive Psychology of Higher Order Thought (DPHOT). After summarizing the framework worked out by Wittgenstein and Searle, as extended by modern reasoning research, I comment on this first book in a trilogy on Human Nature by the leading authority on Wittgenstein.

Before remarking on "Human Nature", I will first offer some comments on philosophy and its relationship to contemporary psychological research as exemplified in the works of Searle (S), Wittgenstein (W), Hacker (H) et al. It will help to see my reviews of PNC (Philosophy in a New Century), TLP, PI, OC, Making the Social World (MSW) and other books by and about these geniuses, who provide a clear description of higher order behavior, not found in psychology books, that I will refer to as the WS framework. I begin with some penetrating quotes from W and S.

"The confusion and barrenness of psychology is not to be explained by calling it a "young science"; its state is not comparable with that of physics, for instance, in its beginnings. (Rather with that of certain branches of mathematics. Set theory.) For in psychology there are experimental methods and conceptual confusion. (As in the other case, conceptual confusion and methods of proof). The existence of the experimental method makes us think we have the means of solving the problems that trouble us; though problem and method pass one another by." Wittgenstein (PI p.232)

"Philosophers constantly see the method of science before their eyes and are irresistibly tempted to ask and answer questions in the way science does. This tendency is the real source of metaphysics and leads the philosopher into complete darkness."(BBB p18).

"But I did not get my picture of the world by satisfying myself of its correctness: nor do I have it because I am satisfied of its correctness. No: it is the inherited background against which I distinguish between true and false." Wittgenstein OC 94

"The aim of philosophy is to erect a wall at the point where language stops anyway."
Wittgenstein Philosophical Occasions p187

"The limit of language is shown by its being impossible to describe a fact which corresponds to (is the translation of) a sentence without simply repeating the sentence ..." Wittgenstein CV p10

"Many words then in this sense then don't have a strict meaning. But this is not a defect. To think it is would be like saying that the light of my reading lamp is no real light at all because it has no sharp boundary." BBB p27

"Every sign is capable of interpretation but the meaning mustn't be capable of interpretation. It is the last interpretation" BBB p34

"There is a kind of general disease of thinking which always looks for (and finds) what would be called a mental state from which all our acts spring, as from a reservoir." BBB p143

"And the mistake which we here and in a thousand similar cases are inclined to make is labeled by the word "to make" as we have used it in the sentence "It is no act of insight which makes us use the rule as we do", because there is an idea that "something must make us" do what we do. And this again joins onto the confusion between cause and reason. We need have no reason to follow the rule as we do. The chain of reasons has an end." BBB p143

"If we keep in mind the possibility of a picture which, though correct, has no similarity with its object, the interpolation of a shadow between the sentence and reality loses all point. For now the sentence itself can serve as such a shadow. The sentence is just such a picture, which hasn't the slightest similarity with what it represents." BBB p37

"Thus we may say of some philosophizing mathematicians that they are obviously not aware of the many different usages of the word "proof"; and that they are not clear about the differences between the uses of the word "kind", when they talk of kinds of numbers, kinds of proof, as though the word "kind" here meant the same thing as in the context "kinds of apples." Or, we may say, they are not aware of the different meanings of the word "discovery" when in one case we talk of the discovery of the construction of the pentagon and in the other case of the discovery of the South Pole." BBB p29

"Some of the most important logical features of intentionality are beyond the reach of phenomenology because they have no immediate phenomenological reality... Because the creation of meaningfulness out of meaninglessness is not consciously experienced...it does not exist...This is... the phenomenological illusion." Searle PNC p115-117

"...the basic intentional relation between the mind and the world has to do with conditions of satisfaction. And a proposition is anything at all that can stand in an intentional relation to the world, and since those intentional relations always determine conditions of satisfaction, and a proposition is defined as anything sufficient to determine conditions of satisfaction, it turns out that all intentionality is a matter of propositions." Searle PNC p193

"The intentional state represents its conditions of satisfaction...people erroneously suppose that every mental representation must be consciously thought...but the notion of a representation as I am using it is a functional and not an ontological notion. Anything that has conditions of satisfaction, that can succeed or fail in a way that is characteristic of intentionality, is by definition a representation of its conditions of satisfaction...we can analyze the structure of the intentionality of social phenomena by analyzing their conditions of satisfaction." Searle MSW p28-32

"Superstition is nothing but belief in the causal nexus." TLP 5.1361

"Now if it is not the causal connections which we are concerned with, then the activities of the mind lie open before us." BBB p6

"We feel that even when all possible scientific questions have been answered, the problems of life remain completely untouched. Of course, there are then no questions left, and this itself is the answer." TLP 6.52

"Nonsense, Nonsense, because you are making assumptions instead of simply describing. If your head is haunted by explanations here, you are neglecting to remind yourself of the most important facts." Z 220

"Philosophy simply puts everything before us and neither explains nor deduces anything...One might give the name 'philosophy' to what is possible before all new discoveries and inventions." PI 126

"The more narrowly we examine actual language, the sharper becomes the conflict between it and our requirement. (For the crystalline purity of logic was, of course, not a result of investigation: it was a requirement.)"PI 107

"The wrong conception which I want to object to in this connexion is the following, that we can discover something wholly new. That is a mistake. The truth of the matter is that we have already got everything, and that we have got it actually present; we need not wait for anything. We make our moves in the realm of the grammar of our ordinary language, and this grammar is already there. Thus, we have already got everything and need not wait for the future." (said in 1930) Waismann "Ludwig Wittgenstein and the Vienna Circle (1979)p183

"Here we come up against a remarkable and characteristic phenomenon in philosophical investigation: the difficulty---I might say---is not that of finding the solution but rather that of recognizing as the solution something that looks as if it were only a preliminary to it. We have already said everything.---Not anything that follows from this, no this itself is the solution!....This is connected, I believe, with our wrongly expecting an explanation, whereas the solution of the difficulty is a description, if we give it the right place in our considerations. If we dwell upon it, and do not try to get beyond it." Zettel p312-314

"Our method is purely descriptive, the descriptions we give are not hints of explanations." BBB p125

These quotes are not chosen at random but (along with the others in my reviews) are an outline of behavior (human nature) from our two greatest descriptive psychologists. In considering these matters we must keep in mind that philosophy is the descriptive psychology of higher order thought (HOT), which is another of the obvious facts that are totally overlooked -i.e., I have never seen it clearly stated anywhere. In addition to failing to make it clear that what they are doing is descriptive psychology, philosophers rarely specify exactly what it is that they expect to contribute to this topic that other students of behavior (i.e., scientists) do not, so after noting W's above remark on science envy, I will quote again from Hacker who gives a good start on it.

"Traditional epistemologists want to know whether knowledge is true belief and a further condition ..., or whether knowledge does not even imply belief ... We want to know when knowledge does and when it does not require justification. We need to be clear what is

ascribed to a person when it is said that he knows something. Is it a distinctive mental state, an achievement, a performance, a disposition or an ability? Could knowing or believing that p be identical with a state of the brain? Why can one say 'he believes that p, but it is not the case that p', whereas one cannot say 'I believe that p, but it is not the case that p'? Why are there ways, methods and means of achieving, attaining or receiving knowledge, but not belief (as opposed to faith)? Why can one know, but not believe who, what, which, when, whether and how? Why can one believe, but not know, wholeheartedly, passionately, hesitantly, foolishly, thoughtlessly, fanatically, dogmatically or reasonably? Why can one know, but not believe, something perfectly well, thoroughly or in detail? And so on - through many hundreds of similar questions pertaining not only to knowledge and belief, but also to doubt, certainty, remembering, forgetting, observing, noticing, recognising, attending, being aware of, being conscious of, not to mention the numerous verbs of perception and their cognates. What needs to be clarified if these questions are to be answered is the web of our epistemic concepts, the ways in which the various concepts hang together, the various forms of their compatibilities and incompatibilities, their point and purpose, their presuppositions and different forms of context dependency. To this venerable exercise in connective analysis, scientific knowledge, psychology, neuroscience and self-styled cognitive science can contribute nothing whatsoever." (Passing by the naturalistic turn: on Quine's cul-de-sac- p15-2005)

A major theme in all discussion of human behavior is the need to separate the genetically programmed automatisms from the effects of culture. All study of higher order behavior is an effort to tease apart not only fast S1 and slow S2 thinking (e.g., perceptions and other automatisms vs. dispositions), but the logical extensions of S2 into culture (S3).

Searle's (S) work as a whole provides a stunning description of higher order S2/S3 social behavior which is due to the recent evolution of genes for dispositional psychology, while the later Wittgenstein (W) shows how it is based on true-only unconscious axioms of S1 which evolved into conscious dispositional propositional thinking of S2.

S1 is the simple automated functions of our involuntary, System 1, fast thinking, mirror neuron, true-only, non-propositional, mental states- our perceptions and memories and reflexive acts including System 1 Truths and UA1 --Understanding of Agency 1-- and Emotions1- such as joy, love, anger) which can be described causally, while the evolutionarily later linguistic functions are expressions or descriptions of voluntary, System 2, slow thinking, mentalizing neurons, testable true or false, propositional, Truth2 and UA2 and Emotions2- joyfulness, loving, hating-- the dispositional (and often counterfactual) imagining, supposing, intending, thinking, knowing, believing, etc. which can only be described in terms of reasons (i.e., it's just a fact that attempts to describe System 2 in terms of neurochemistry, atomic physics, mathematics, make no sense--see W for many examples and Searle and Hacker (Human Nature)for disquisitions).

One should take seriously W's comment that even if God could look into our mind he could not see what we are thinking--this should be the motto of Cognitive Psychology. Yes, a cognitive psychologist of the future *may* be able to see what we are perceiving and remembering and our reflexive thinking and acting, since these S1 functions are always causal mental states (CMS) but S2 dispositions are only potentially CMS and so not realized or visible. This is not a theory but description of our language, mind, life, grammar (W). S, Carruthers (C) and others muddy the waters here because they sometimes refer to dispositions as mental states as well, but as W did long ago, S, Hacker and others show that

the language of causality just does not apply to the higher order emergent S2 descriptions--again not a theory but a description of how our dispositional states (language, thinking) work.

S1 is composed of unconscious, fast, physical, causal, automatic, non-propositional, true only mental states, while slow S2 can only coherently be described in terms of reasons for actions that are more or less conscious dispositions to behavior (potential actions) that are or can become propositional (T or F). It seems quite obvious to me (as it was to W) that the mechanical view of mind exists for the same reason as nearly all behavior--it is the default operation of our evolved psychology (EP) which seeks explanations in terms of what we can deliberately think through slowly (S2), rather than in the automated S1, of which we mostly remain oblivious--called by S in PNC 'The Phenomenological Illusion' (TPI). TPI is not a harmless philosophical error but a universal obliviousness to our biology which produces the illusion that we control our life and among the consequences are the inexorable collapse of what passes for civilization.

Our slow or reflective, more or less "conscious" (beware another network of language games!) second-self brain activity corresponds to what W characterized as "dispositions" or "inclinations", which refer to abilities or possible actions, are not mental states (or not in the same sense as S1 states), and do not have any definite time of occurrence and/or duration. But disposition words like "knowing", "understanding", "thinking", "believing", which W discussed extensively, have at least two basic uses. One is a peculiar philosophical use (but graduating into everyday uses) which refers to the true-only sentences resulting from direct perceptions and memory, i.e., our innate axiomatic S1 psychology ('I know these are my hands')--i.e., they are Causally Self Referential (CSR)—i.e., to see a cat makes it true and in the normal case no test is possible, and the S2 use, which is their normal use as dispositions, which can be acted out, and which can become true or false ('I know my way home')--i.e., they have external, public, testable Conditions of Satisfaction (COS) and are not CSR.

The investigation of involuntary fast thinking of System 1 has revolutionized psychology, economics and other disciplines under names like "cognitive illusions", "priming", "framing", "heuristics" and "biases". Of course these too are language games so there will be more and less useful ways to use these words, and studies and discussions will vary from "pure" System 1 to combinations of 1 and 2 (the norm as W made clear), but presumably not ever of slow System 2 dispositional thinking only, since any System 2 thought or intentional action cannot occur without involving much of the intricate network of "cognitive modules", "inference engines", "intracerebral reflexes", "automatisms", "cognitive axioms", "background" or "bedrock" --as W and later Searle call our Evolutionary Psychology (EP).

One way of regarding this is that the unconscious automatic System 1 activates the higher cortical conscious personality of System 2, bringing about throat muscle contractions which inform others that it sees the world in certain ways, which commit it to potential actions. A huge advance over prelinguistic or protolinguistic interactions in which only gross muscle movements were able to convey very limited information about intentions.

The deontic structures or 'social glue' are the automatic fast actions of S1 producing the slow dispositions of S2 which are inexorably expanded during personal development into a wide array of automatic universal cultural deontic relationships (S3). I expect this fairly well describes the basic structure of behavior.

These descriptions of cognition and volition are summarized in Table 2.1 of MSW, which Searle has used for many years and is the basis for an extended one I have created. In my

view it helps enormously to relate this to modern psychological research by using my S1, S2, S3 terminology and W's true-only vs propositional (dispositional) description. Thus CSR references S1 true-only perception, memory and prior intention, while S2 refers to dispositions such as belief and desire.

So, recognizing that S1 is only upwardly causal (world to mind) and contentless (lacking representations or information) while S2 has content and is downwardly causal (mind to world) (e.g., see my review of Hutto and Myin's 'Radical Enactivism'), I would change the paragraphs from MSW p39 beginning "In sum" and ending on pg 40 with "conditions of satisfaction" as follows.

In sum, perception, memory and reflexive prior intentions and actions ('will') are caused by the automatic functioning of our S1 true-only axiomatic EP. Via prior intentions and intentions-in-action, we try to match how we desire things to be with how we think they are. We should see that belief, desire (and imagination--desires time shifted and decoupled from intention) and other S2 propositional dispositions of our slow thinking later evolved second self, are totally dependent upon (have their COS originating in) the CSR rapid automatic primitive true-only reflexive S1. In language and neurophysiology there are intermediate or blended cases such as intending (prior intentions) or remembering, where the causal connection with COS (i.e., with S1) is time shifted, as they represent the past or the future, unlike S1 which is always in the present. S1 and S2 feed into each other and are often orchestrated seamlessly by the learned deontic cultural relations of S3, so that our normal experience is that we consciously control everything that we do. This vast arena of cognitive illusions that dominate our life S has described as 'The Phenomenological Illusion.'

It follows in a very straightforward and inexorable fashion, both from W's 3rd period work and from the observations of contemporary psychology, that 'will', 'self' and 'consciousness' are axiomatic true-only elements of System 1 just like seeing, hearing, etc., and there is no possibility (intelligibility) of demonstrating (of giving sense to) their falsehood. As W made so wonderfully clear numerous times, they are the basis for judgment and so cannot be judged. The true-only axioms of our psychology are not evidential.

Like Carruthers and others, S sometimes states (e.g., p66-67 MSW) that S1 (i.e., memories, perceptions, reflex acts) has a propositional (i.e., true-false) structure. As I have noted above, and many times in other reviews, it seems crystal clear that W is correct, and it is basic to understanding behavior, that only S2 is propositional and S1 is axiomatic and true-only. They both have COS and Directions of Fit (DOF) because the genetic, axiomatic intentionality of S1 generates that of S2 but if S1 were propositional in the same sense it would mean that skepticism is intelligible, the chaos that was philosophy before W would return, and in fact if true, life would not be possible. As W showed countless times and biology demonstrates, life must be based on certainty--automated unconscious rapid reactions. Organisms that always have a doubt and pause to reflect will die--no evolution, no people, no philosophy.

Language and writing are special because the short wavelength of vibrations of vocal muscles enable much higher bandwidth information transfer than contractions of other muscles and this is on average several orders of magnitude higher for visual information.

Thinking is propositional and so deals with true or false statements, which means that it is a

typical S2 disposition which can be tested, as opposed to the true-only automatic cognitive functions of S1. Or you can say that spontaneous utterances and actions are the primitive reflexes or Primary Language Games (PLG) of S1, while conscious representations are the dispositional Secondary Language Games (SLG's) of S2. It sounds trivial and indeed it is, but this is the most basic statement of how behavior works and hardly anyone has ever understood it.

I would translate S's summary of practical reason on p127 of MSW as follows: "We yield to our desires (need to alter brain chemistry), which typically include Desire -Independent Reasons for Action (DIRA--i.e., desires displaced in space and time, most often for reciprocal altruism), which produce dispositions to behavior that commonly result sooner or later in muscle movements that serve our inclusive fitness (increased survival for genes in ourselves and those closely related)." And I would restate his description on p129 of how we carry out DIRA2/3 as "The resolution of the paradox is that the unconscious DIRA1 serving long term inclusive fitness generate the conscious DIRA2 which often override the short term personal immediate desires." Agents do indeed consciously create the proximate reasons of DIRA2/3, but these are very restricted extensions of unconscious DIRA1 (the ultimate cause).

Evolution by inclusive fitness has programmed the unconscious rapid reflexive causal actions of S1 which often give rise to the conscious slow thinking of S2 (often modified into the cultural extensions of S3), which produces reasons for action that often result in activation of body and/or speech muscles by S1 causing actions. The general mechanism is via both neurotransmission and by changes in neuromodulators in targeted areas of the brain. The overall cognitive illusion (called by S 'The Phenomenological Illusion', by Pinker 'The Blank Slate' and by Tooby and Cosmides 'The Standard Social Science Model') is that S2/S3 has generated the action consciously for reasons of which we are fully aware and in control of, but anyone familiar with modern biology and psychology can see that this view is not credible.

Though W is correct that there is no mental state that constitutes meaning, S notes (as quoted above) that there is a general way to characterize the act of meaning-- "Speaker meaning... is the imposition of conditions of satisfaction on conditions of satisfaction" which is an act and not a mental state. This can be seen as another statement of W's argument against private language (personal interpretations vs publicly testable ones). Likewise with rule following and interpretation --they can only be publicly checkable acts--no private rules or private interpretations either. And one must note that many (most famously Kripke) miss the boat here, being misled by W's frequent referrals to community practice into thinking it's just arbitrary public practice that underlies language and social conventions. W makes clear many times that such conventions are only possible given an innate shared psychology which he often calls the background, and it is this which underlies all behavior and which is schematized in the table.

As I have noted in my other reviews, few if any have fully understood the later W and, lacking the S1, S2 framework it is not surprising. Thus one can understand why one cannot

imagine an object while seeing it as the domination of S2 by S1. There is no test for my inner experiences, so whatever comes to mind when I imagine Jack's face is the image of Jack. Similarly with reading and calculation which can refer to S1, S2 or a combination and there is the constant temptation to apply S2 terms to S1 processes where the lack of any test makes them inapplicable. Two of W's famous examples used for combatting this temptation are playing tennis without a ball ('S1 tennis'), and a tribe that had only S2 calculation so 'calculating in the head' ('S1 calculating') was not possible. 'Playing' and 'calculating' describe actual or potential acts--i.e., they are disposition words but with plausible reflexive S1 uses so as I have said before one really ought to keep them straight by writing 'playing1' and 'playing2' etc. But we are not taught to do this and so we want to either dismiss 'calculating1' as a fantasy, or we think we can leave its nature undecided until later. Hence another of W's famous comments--"The decisive movement in the conjuring trick has been made, and it was the very one we thought quite innocent." That is, the first few sentences or often the title commit one to a way of looking at things (a language game) which prevents clear use of language in the present context.

A sentence expresses a thought (has a meaning), when it has clear COS, and this means has public truth conditions. Hence the comment from W: "When I think in language, there aren't 'meanings' going through my mind in addition to the verbal expressions: the language is itself the vehicle of thought." And, if I think with or without words, the thought is whatever I (honestly) say it is as there is no other possible criterion (COS). Thus W's lovely aphorisms (p132 Budd) "It is in language that wish and fulfillment meet" and "Like everything metaphysical, the harmony between thought and reality is to be found in the grammar of the language." And one might note here that 'grammar' in W can usually be interpreted as the logical structure of language, and that in spite of his frequent warnings against theorizing and generalizing, this is about as broad a characterization of philosophy and higher order descriptive psychology as one can find.

Likewise with the question "What makes it true that my image of Jack is an image of him?" Imagining is another disposition and the COS is that the image I have in my head is Jack and that's why I will say 'YES' if shown his picture and 'NO' if shown one of someone else. The test here is *not* that the photo matches the vague image I had but that I intended it (had the COS that) to be an image of him. Hence the famous quote from W: "If God had looked into our minds he would not have been able to see there whom we were speaking of (PI p217)" and his comments that the whole problem of representation is contained in "that's Him" and "...what gives the image its interpretation is the path on which it lies," or as S says its COS. Hence W's summation (p140 Budd) that "What it always comes to in the end is that without any further meaning, he calls what happened the wish that that should happen"..." the question whether I know what I wish before my wish is fulfilled cannot arise at all. And the fact that some event stops my wishing does not mean that it fulfills it. Perhaps I should not have been satisfied if my wish had been satisfied"...Suppose it were asked 'Do I know what I long for before I get it? If I have learned to talk, then I do know.'" Disposition words refer to Potential Events (PE's) which I accept as fulfilling the COS and my mental states, emotions, change of interest etc. have no bearing on the way dispositions function. I am hoping, wishing, expecting, thinking, intending, desiring etc. depending on the state I take myself to be in-- on the COS that I express. Thinking and intending are S2

dispositions which can only be expressed by reflexive S1 muscle contractions, especially those of speech.

Now that we have a reasonable start on the Logical Structure of Rationality (the Descriptive Psychology of Higher Order Thought) laid out we can look at the table of Intentionality that results from this work, which I have constructed over the last few years. It is based on a much simpler one from Searle, which in turn owes much to Wittgenstein. I have also incorporated in modified form tables being used by current researchers in the psychology of thinking processes which are evidenced in the last 9 rows. It should prove interesting to compare it with those in Peter Hacker's 3 recent volumes on Human Nature. I offer this table as an heuristic for describing behavior that I find more complete and useful than any other framework I have seen and not as a final or complete analysis, which would have to be three dimensional with hundreds (at least) of arrows going in many directions with many (perhaps all) pathways between S1 and S2 being bidirectional. Also, the very distinction between S1 and S2, cognition and willing, perception and memory, between feeling, knowing, believing and expecting etc. are arbitrary--that is, as W demonstrated, all words are contextually sensitive and most have several utterly different uses (meanings or COS). Many complex charts have been published by scientists but I find them of minimal utility when thinking about behavior (as opposed to thinking about brain function). Each level of description may be useful in certain contexts but I find that being coarser or finer limits usefulness.

INTENTIONALITY (personality)-the Construction of Social Reality ©2015 Michael Starks

	(Involuntary Rules R1)				(Voluntary Rules R2)		
	Thinking (Cognition)(No gaps)				Willing (Volition)(3 gaps)		
	Preferences*	Emotions	Memory	Perception	Desires	IA** +	Actions/Words
Cause Originates From	World	World	World	World	Mind	Mind	Mind
Causes Changes In	None	Mind	Mind	Mind	None	World	World
Causally Self Referential***	No	Yes	Yes	Yes	No	Yes	Yes
True or False(Testable)	Yes	T only	T only	T only	Yes	Yes	Yes
Public Conditions of Satisfaction	Yes	Yes/No	No	No	Yes/No	Yes/No	Yes
Describe a Mental State	No	Yes	Yes	Yes	No	Yes/No	Yes

Evolutionary Priority	5	4	2 (3?)	1	5	2	2
Voluntary Content	Yes	No	No	No	No	Yes	Yes
Voluntary Initiation	Yes/No	No	Yes	No	Yes/No	Yes	Yes
Cognitive System ****	2	1	1	1	2 / 1	2	2
Change Intensity	No	Yes	Yes	Yes	Yes	No	No
Precise Duration	No	Yes	Yes	Yes	No	Yes	Yes
Time and Place(H+N or T+T)*****	TT	HN	HN	HN	TT	HN	HN
Special Quality	No	Yes	No	Yes	No	No	No
Localized in Body	No	No	No	Yes	No	Yes	Yes
Bodily Expressions	Yes	Yes	No	No	Yes	Yes	Yes
Self Contradictions	No	Yes	No	No	Yes	No	No
Needs a Self	Yes	Yes/No	No	No	Yes	No	No
Needs Language	Yes	No	No	No	No	No	Yes/No
Subliminal Effects	No	Yes/No	Yes	Yes	No	No	Yes/No
Associative/Rule Based	RB	A/RB	A	A	A/RB	RB	RB
Context Dependent/Abstract	A	CD/A	CD	CD	CD/A	CD/A	CD/A
Serial/Parallel	S	S/P	P	P	S/P	S	S
Heuristic/Analytic	A	H/A	H	H	H/A	A	A
Needs Working Memory	Yes	No	No	No	No	Yes	Yes
General Intelligence Dependent	Yes	No	No	No	Yes/No	Yes	Yes
Cognitive Loading Inhibits	Yes	Yes/No	No	No	Yes	Yes	Yes
Arousal Facilitates or Inhibits	I	F/I	F	F	I	I	I

“The basic form of the game must be one in which we act.” Wittgenstein- Cause and Effect p397(1937)

* Aka Inclinations, Capabilities, Dispositions, Representations etc.

** Intention In Action

*** (Mental State instantiates--Causes or Fulfills --Itself)

**** Tversky/Kahneman/Frederick/Evans/Stanovich defined cognitive systems.

**** Here and Now or There and Then

EXPLANATION OF THE TABLE

About a million years ago primates evolved the ability to use their throat muscles to make complex series of noises (i.e., primitive speech) to describe present events (perceptions, memory, reflexive actions that can be described as Primary or Primitive Language Games (PLG's)—i.e., one class of reflexes of the fast associative unconscious automated System 1, subcortical, nonrepresentational, causally self-referential, intransitive, informationless, true only mental states with a precise time and location) and gradually developed the further ability to encompass displacements in space and time to describe memories, attitudes and potential events (the past and future and often counterfactual, conditional or fictional preferences, inclinations or dispositions—the Secondary or Sophisticated Language Games (SLG's) of System 2 slow, cortical, conscious, information containing, transitive (having public COS), representational, true or false propositional attitudinal thinking, which has no precise time and are abilities and not mental states). Preferences are Intuitions, Tendencies, Automatic Ontological Rules, Behaviors, Abilities, Cognitive Modules, Personality Traits, Templates, Inference Engines, Inclinations, Emotions, Propositional Attitudes, Appraisals, Capacities, Hypotheses. Some Emotions are Type 2 Preferences (W RPP2 148). "I believe", "he loves", "they think" are descriptions of possible public acts typically displaced in spacetime. My first person statements about myself are true-only (excluding lying) while third person statements about others are true or false (see my review of Johnston 'Wittgenstein: Rethinking the Inner').

"Preferences" as a class of intentional states --opposed to perceptions, reflexive acts and memories-- were first clearly described by Wittgenstein (W) in the 1930's and termed "inclinations" or "dispositions". They have commonly been termed "propositional attitudes" since Russell but this is a misleading phrase since believing, intending, knowing, remembering etc., are often not propositions nor attitudes, as has been shown e.g., by W and by Searle (e.g., cf Consciousness and Language p118). They are intrinsic, observer independent mental representations (as opposed to presentations or representations of System 1 to System 2 – Searle-C+L p53). They are potential acts displaced in time or space while the evolutionarily more primitive S1 perceptions memories and reflexive actions are always here and now. This is one way to characterize System 2 –the major advance in vertebrate psychology after System 1—the ability to represent events and to think of them as occurring in another place or time (Searle's third faculty of counterfactual imagination supplementing cognition and volition). S2 dispositions are abilities to act (contract muscles producing speech or body movements via S1 at which time they become causal and mental states). Sometimes dispositions may be regarded as unconscious since they can become conscious later-Searle-Phil Issues 1:45-66(1991).

Perceptions, memories and reflexive (automatic) actions can be described as S1 or Primary Language Games's (PLG's --e.g., I see the dog) and there are, in the normal case, NO TESTS possible so they can be True Only. Dispositions can be described as secondary LG's (SLG's --e.g. I believe I see the dog) and must also be acted out, even for me in my own case (i.e., how do I KNOW what I believe, think, feel until I act—see above quotes from W). Dispositions also become Actions when spoken or written as well as being acted out in other ways, and these ideas are all due to Wittgenstein (mid 1930's) and are NOT Behaviorism (Hintikka & Hintikka 1981, Searle, Hutto etc.). Wittgenstein can be regarded as the founder of evolutionary psychology and his work a unique investigation of the functioning of our axiomatic System 1 psychology and its interaction with System 2. Though few have understood it well (and arguably nobody fully to this day) it was further developed by a few --above all by John Searle, who made a simpler version of this table in his classic book Rationality in Action (2001). It expands on W's survey of the axiomatic structure of evolutionary psychology developed from his very first comments in 1911 and so beautifully laid out in his last work On Certainty (OC) (written in 1950-51). OC is the foundation stone of behavior or epistemology and ontology (arguably the same), cognitive linguistics or DPHOT, and in my view the single most important work in philosophy (descriptive psychology) and thus in the study of behavior. Perception, Memory, Reflexive actions and Basic Emotions are primitive partly Subcortical Involuntary Mental States, that can be described in PLG's, in which the mind automatically fits the world (is Causally Self Referential--Searle)--the unquestionable, true only, axiomatic basis of rationality over which no control is possible). Preferences, Desires, and Intentions are descriptions of slow thinking conscious Voluntary Abilities—that can be described in SLG's-- in which the mind tries to fit the world. Behaviorism and all the other confusions of our default descriptive psychology (philosophy) arise because we cannot see S1 working and describe all actions with Secondary Language Games (SLG's) which S calls The Phenomenological Illusion (TPI). W understood this and described it with unequalled clarity with hundreds of examples of language (the mind) in action throughout his works. Reason has access to working memory and so we use consciously apparent but typically incorrect reasons to explain behavior (the Two Selves of current research). Beliefs and other Dispositions can be described as thoughts which try to match the facts of the world (mind to world direction of fit), while Volitions are intentions to act (Prior Intentions—PI, and Intentions In Action-IA-Searle) plus acts which try to match the world to the thoughts—world to mind direction of fit—cf. Searle e.g., C+L p145, 190).

Sometimes there are gaps in reasoning to arrive at belief and other dispositions. Inclination words can be used as nouns which *seem* to describe mental states (e.g. belief), or as verbs which describe abilities (agents as they act or might act) (e.g., believing) and are often incorrectly called "Propositional Attitudes". Perceptions become Memories and our innate programs (cognitive modules, templates, inference engines of S1) use these to produce Dispositions—(actual or potential PUBLIC ACTS also called Inclinations, Preferences, Capabilities, Representations of S2) and Volition -and there is no language (concept, thought)

of PRIVATE mental states for thinking or willing (i.e., no private language). Higher animals can think and will acts and to that extent they have a public psychology. Perceptions: ("X" is True): Hear, See, Smell, Pain, Touch, temperature

Memories: Remembering, Dreaming (S1)

Preferences, Inclinations, Dispositions (X might become True) (S2)

CLASS 1: Believing, Judging, Thinking, Representing, Understanding, Choosing, Deciding, Preferring, Interpreting, Knowing (including skills and abilities), Attending (Learning), Experiencing, Meaning, Remembering, Intending, Considering, Desiring , expecting, wishing , wanting, hoping(a special class), Seeing As (Aspects),

CLASS 2: DECOUPLED MODE-- Dreaming , Imagining, Lying, Predicting, Doubting

CLASS 3: EMOTIONS: Loving, Hating, Fearing, Sorrow, Joy, Jealousy, Depression . Their function is to modulate Preferences to increase inclusive fitness (expected maximum utility) by facilitating information processing of perceptions and memories for rapid action. There is some separation between S1 emotions such as rage and fear and S2 such as love, hate, disgust and anger.

DESIRES: (I want "X" to be True—I want to change the world to fit my thoughts) : Longing, Hoping, Expecting, Awaiting, Needing, Requiring, obliged to do

INTENTIONS: (I will make "X" True) Intending

ACTIONS (I am making "X" True) : Acting, Speaking , Reading, Writing, Calculating, Persuading, Showing, Demonstrating, Convincing, Doing Trying, Attempting, Laughing, Playing, Eating, Drinking, Crying, Asserting(describing, teaching, predicting, reporting), Promising , Making or Using Maps, Books, Drawings, Computer Programs—these are Public and Voluntary and transfer Information to others so they dominate over the Unconscious, Involuntary and Informationless S1 reflexes in explanations of behavior.

ALL WORDS ARE PARTS OF COMPLEX LANGUAGE GAMES (THOUGHTS LEADING TO ACTIONS) HAVING VARIOUS FUNCTIONS IN OUR LIFE AND ARE NOT THE NAMES OF OBJECTS NOR OF A SINGLE TYPE OF EVENT. We drive a car but also own it, see it, see its photo, dream about it, imagine it, expect it, remember it. The social interactions of humans are governed by cognitive modules—roughly equivalent to the scripts or schemata of social psychology (groups of neurons organized into inference engines), which, with perceptions and memories, lead to the formation of preferences which lead to intentions and then to actions. Intentionality or intentional psychology can be taken to be all these processes or only preferences leading to actions and in the broader sense is the subject of cognitive psychology or cognitive neurosciences when including neurophysiology, neurochemistry and neurogenetics. Evolutionary psychology can be regarded as the study of all the preceding functions or of the operation of the modules which produce behavior,

and is then coextensive in evolution, development and individual action with preferences, intentions and actions. Since the axioms (algorithms or cognitive modules) of our psychology are in our genes, we can enlarge our understanding by giving clear descriptions of how they work and can extend them (culture) via biology, psychology, philosophy (descriptive psychology), math, logic, physics, and computer programs, thus making them faster and more efficient. Hajek (2003) gives an analysis of dispositions as conditional probabilities and they are algorithmatized by Spohn etc.

Intentionality (cognitive or evolutionary psychology) consists of various aspects of behavior which are innately programmed into cognitive modules (however defined) which create and require consciousness, will and self and in normal human adults all dispositions are purposive, require public acts (e.g., language), and commit us to relationships (called Desire Independent Reasons for Action-DIRA by Searle) in order to increase our inclusive fitness (maximum expected utility—sometimes called-controversially-Bayesian utility maximization) via dominance and reciprocal altruism and impose Conditions of Satisfaction on Conditions of Satisfaction -Searle-(i.e., relate thoughts to the world via public acts (muscle movements –i.e., math, language, art, music, sex, sports etc.). The basics of this were figured out by our greatest natural psychologist Ludwig Wittgenstein from the 1930's to 1951 but with clear foreshadowings back to 1911 ("The general tree of psychological phenomena. I strive not for exactness but for a view of the whole." RPP Vol 1 P895 cf Z P464), and with refinements by many, but above all by John Searle beginning in the 1960's. Much of our S2 intentionality admits of degrees or kinds (principally language games). As W noted, inclinations (e.g. thinking) are sometimes conscious and deliberative. All our templates (functions, concepts, language games) have fuzzy edges in some contexts as they must to be useful. There are at least two types of thinking (i.e., two language games or ways of using the dispositional verb "thinking")—non-rational without awareness and rational with partial awareness(W), now described as the fast and slow thinking of S1 and S2. It is useful to regard these as language games and not as mere phenomena (W RPP2 129). Mental phenomena (our subjective or internal "experiences") are epiphenomenal, lack criteria, hence lack info even for oneself and thus can play no role in communication, thinking or mind. Thinking like all dispositions (inclinations, propositional attitudes) is not a mental state, and contains no information until it becomes a public act (realizes a COS) in speech, writing or other muscular contractions. Our perceptions and memories can have information (meaning-COS) when they are manifested in public actions via S2, for only then do they have any meaning (consequences) even for ourselves.

Memory and perception are integrated by modules into dispositions which become psychologically effective when they are acted upon. Developing language means manifesting the innate ability to substitute words for acts. The common term TOM (Theory of Mind) is much better called (UA-Understanding of Agency). Intentionality is the innate genetically programmed production of consciousness, self, and thought which leads to intentions and then to actions by contracting

muscles. Thus, "propositional attitude" is a confusing term for normal intuitive rational or non-rational speech and action but I give it as an synonym for dispositions as it's still widely used by those unfamiliar with W and S. The efforts of cognitive science to understand thinking, emotions etc. by studying neurophysiology is not going to tell us anything more about how the mind (thought, language) works (as opposed to how the *brain* works) than we already know, because "mind" (thought, language) is already in full public view (W). Any phenomena that are hidden in neurophysiology, biochemistry, genetics, quantum mechanics, or string theory, are as irrelevant to our social life as the fact that a table is composed of atoms which "obey" (can be described by) the laws of physics and chemistry is to having lunch on it. As W so famously said "Nothing is hidden". Everything of interest about the mind (thought, language) is open to view if we only examine carefully the workings of language. Language was evolved to facilitate social interaction and thus the gathering of resources, survival and reproduction. Its grammar functions automatically and is extremely confusing when we try to analyze it. Words and sentences have multiple uses depending on context. I believe and I eat have profoundly different roles as do I believe and I believed or I believe and he believes. The present tense first person expressive use of inclinational verbs such as "I believe" describe my ability to predict my probable acts and are not descriptive of my mental state nor based on knowledge or information in the usual sense of those words (W). "I believe its raining", "I believed it was raining", "he believes its raining", "he will believe its raining", "I believe it will rain" or "he will think it's raining" are potentially verifiable public acts displaced in spacetime that intend to convey information (or misinformation) and so have COS which are their truth (or falsity) makers.

Non-reflective or Non-rational (automatic) words spoken without Prior Intent have been called Words as Deeds by W & then by DMS in her paper in Philosophical Psychology in 2000) are typical of much of our behavior as they bridge S1 and S2 which interact in both directions most of our waking life. Perceptions, Memories, some Emotions and many "Type 1 Dispositions" are better called Reflexes of S1 and are automatic, non-reflective, NON-Propositional and NON-Attitudinal functioning of the hinges (axioms, algorithms) of our Evolutionary Psychology (Moyal-Sharrock after Wittgenstein).

Now for some comments on "Human Nature: the Categorical Framework" (HN).

Hacker is the world's leading authority on W and much of his work has been dedicated to explaining him so there is inevitably a Wittgensteinian feel to much of this book. This is the first of 3 volumes on Human Nature (the second The Intellectual Powers: A Study of Human Nature has now appeared and the third on ethics should follow soon) and its aim is to lay out the classes or categories of the psychology of intentionality. The quote from H above gives the best brief overview of what needs to be described as I have seen. And this description is, as both H and W insist, a conceptual and not scientific one for reasons that should be obvious from their work. This is totally at odds with the views of many others (most notoriously e.g. Dennett, Carruthers and the Churchlands) who think that not only

must philosophy explain behavior but that it must fundamentally change as science progresses.

A capsule summary of what H is getting at here can be gained by looking at the various charts and I again suggest comparing them with my table above. Sadly there is no bibliography-a major failing, but this is trivial compared to the lack of any serious discussion of the work of John Searle (S)--in my view, next to W, the major philosopher of recent times. Since I have referenced S many times above and in my other reviews I will not repeat the reasons for this view here. Recently there have been some exchanges between the two recorded in "Neuroscience and Philosophy" which appeared as a result of H's views expressed e.g. in Philosophical Foundations of Neuroscience which I will review soon. Both authors score some points and miss critical ideas in the others work. I have noted S's failure to appreciate W before. Hacker is representing W's views or at least Wittgensteinian views most of the time so we get as close as we ever will to a confrontation between the two geniuses of descriptive psychology --W and S.

Though H gives the best characterization of the task of philosophy I have seen(see above) nevertheless his comment on p10 makes me note again that it is just the descriptive psychology of higher order thought.

Anyone interested in a concise demolition of Quine (another great mind who totally missed W and thus the whole enterprise of philosophy) should see H's paper 'PASSING BY THE NATURALISTIC TURN: ON QUINE'S CUL-DE-SAC' (though of course Q's deconstruction has been done by many including S).

The discussion of the logical (psychological) difference between the S1 causes and the S2 reasons in Chapter 7, esp. on p226-32 is critical for any student of behavior. It is a nearly universal delusion that "cause" is a precise logically exact term while "reason" is not but W exposed this many times and so have others, but this discussion is the best and most concise I can recall and it is basic to any understanding of behavior. Of course the same issue arises with all scientific and mathematical concepts. The discussion of mental states vs. dispositions is excellent and reminds me that S's continued reference to dispositions as mental states and his reference to mental states as representations (actually 'presentations' in his latest work) with COS, is (in my view) counterproductive. Though I accept most of S's ontology and epistemology I don't see the advantage of regarding our seeing an apple as the COS of a perception rather than that they are the true only results of the unconscious actions of S1.

The table on p147 and the whole chapter on agency reminds me again of how greatly this work would have benefited from the S, S2 notions and S's concepts such as Prior Intention, Intention in Action, intentional gaps, DOF, COS, CSR etc. And of course one must keep constantly in mind that 'action', 'condition', 'satisfaction', 'intention', and even 'and', 'or', 'prior', 'true' etc. are all complex language games able to trip us up as W so beautifully described in BBB in the early 30's.

The footnote on p235-6 reminds us that it was Descartes mistake that played a major role in laying the dead hand of private language and introspection on philosophy.

I see as another failing H's obliviousness (which as noted he shares with S and most philosophers) to the modern two systems framework and to the full implications of W's "radical" epistemology as stated most dramatically in his last work `On Certainty', as I have noted in many reviews (and as DMS noted in her superb book on OC). This is sad, as I have described how it was W who did the first and best job of describing the two systems (though nobody else has noticed) and that OC represents a major event in intellectual history. One of the numerous places this comes out is p245 in the discussion of doubt where he could have noted that `grammar' is another word for the axiomatic true only EP of S1. Likewise with his table on p19 where one kind of `proposition' is listed as conceptual truths--i.e., what W called true only sentences or ideas, the axiomatic EP or `grammar' that is the basis for judging.

In spite of what I see as its limitations, this is a unique work of great interest to philosophers, psychologists, linguists, AI researchers and many others. One hopes that Hacker is able to complete a second edition.